

IN THE CLAIMS:

Please amend the claims as follows:

1. (Currently Amended) A method for transmitting video
[[information,]]information from an encoder in which at least one bitstream is
formed from the video information comprising a set of frames, the frames
comprising macroblocks, wherein the method comprises:
 ~~forming at least one switching frame~~a plurality of switching frames into said
bitstream;
 arranging macroblocks of ~~said each~~ said plurality of
switching frames into a first group of macroblocks and a second group of
macroblocks;
 encoding each macroblock of said first group of macroblocks in said each
switching frame by a first encoding method to provide a switching point for
continuing transmission of video information with another bitstream formed from
the video information; and
 encoding macroblocks of said second group of macroblocks in said each
switching frame by ~~another~~a second encoding method wherein successive switching
frames of said plurality of switching frames do not have corresponding groups of
macroblocks encoded by said first encoding method.
2. (Original) The method according to claim 1 comprising encoding said first group
of macroblocks by an intra encoding method.
3. (Original) The method according to claim 2 comprising encoding said second
group of macroblocks by a predictive encoding method.
4. (Currently Amended) The method according to claim 1 comprising arranging said
macroblocks of each switching frame of said plurality of switching frames into a set
of slices, and arranging macroblocks of one slice of said set of the slices as said first
group of macroblocks, and arranging macroblocks of other slices of said set of ~~the~~

slices as said second group of macroblocks.

5. (Currently Amended) The method according to claim 1 comprising

forming at least a first switching frame and a second switching frame into said bitstream, the switching frames being divided into mutually similar groups of macroblocks with each macroblock of the first switching frame having a spatially respective macroblock in said second switching frame;

arranging macroblocks of said first switching frame into ~~a~~said first group and ~~a~~said second group of macroblocks;

arranging macroblocks of said second switching frame into ~~a third~~said first group and ~~a fourth~~said second group of macroblocks so that the macroblocks of said ~~third~~first group of macroblocks of said second switching frame are spatially different macroblocks than the macroblocks of said first group of macroblocks of said first switching frame;

encoding each macroblock of said first group of said first switching frame and said ~~third~~first group of macroblocks of said second switching frame by a first encoding method to provide a switching point for continuing the transmission of video information with said other bitstream formed from the video information; and

encoding macroblocks of said second group of said first switching frame and said ~~fourth~~second group of macroblocks of said second switching frame by another encoding method.

6. (Currently Amended) The method according to claim 1 comprising forming an intra encoded frame from a frame of said set of frames, forming a switching predictive encoded frame from a frame following said intra encoded frame, and forming ~~said~~ at least one switching frame from a frame following said switching predictive encoded frame.

7. (Currently Amended) An apparatus comprising:

an encoder configured for forming ~~at least one switching frame~~ a plurality of switching frames into said bitstream; and

for arranging macroblocks of ~~said~~each switching frame of said plurality of switching frames into a first group of macroblocks and a second group of macroblocks; said encoder including:

a first prediction block configured for encoding each macroblock of said first group of macroblocks by a first encoding method to provide a switching point for continuing transmission of video information with another bitstream formed from the video information; and

a second prediction block configured for encoding macroblocks of said second group of macroblocks by ~~another~~a second encoding method,

wherein successive switching frames of said plurality of switching frames do not have corresponding groups of macroblocks encoded by said first encoding method.

8. (Previously Presented) The apparatus according to claim 7, wherein said first encoding method is an intra encoding method.

9. (Previously Presented) The apparatus according to claim 8, wherein said second encoding method is a predictive encoding method.

10. (Currently Amended) The apparatus according to claim 7 comprising an arranger configured for arranging said macroblocks of each switching frame of said plurality of switching frames into a set of slices, and for arranging macroblocks of one slice of said set of the slices as said first group of macroblocks, and for arranging macroblocks of other slices of said set of ~~the~~ slices as said second group of macroblocks.

11. (Currently Amended) The apparatus according to claim 7

said encoder configured for forming at least a first switching frame and a second switching frame into said bitstream, the first switching frames ~~frame~~ and the second switching frame being divided into mutually similar groups of macroblocks with each macroblock of the first switching frame having a spatially respective macroblock in said second switching frame;

an arranger configured for arranging macroblocks of said first switching frame into ~~a~~said first group of macroblocks and ~~a~~said second group of macroblocks; and for arranging macroblocks of said second switching frame into ~~a third~~said first group of macroblocks and ~~a fourth~~said second group of macroblocks so that the macroblocks of said ~~third~~first group of macroblocks of said second switching frame are spatially different macroblocks than macroblocks of said first group of macroblocks of said first switching frame;

said first prediction block is configured for encoding each macroblock of said first group of macroblocks of said first switching frame and said ~~third~~first group of macroblocks of said second switching frame by a first encoding method to provide a switching point for continuing the transmission of video information with another bitstream formed from the video information; and

said second prediction block is configured for encoding macroblocks of said second group of macroblocks of said first switching frame and said ~~fourth~~second group of macroblocks of said second switching frame by another encoding method.

12. (Currently Amended) The apparatus according to claim 7 configured for forming an intra encoded frame from a frame of said set of frames, for forming a switching predictive encoded frame from a frame following said intra encoded frame, and for forming ~~said at least one~~ switching frame from a frame following said switching predictive encoded frame.

13. (Currently Amended) A transmission system for transmitting video information, the system comprising an encoder for encoding video information into at least one bitstream, a transmitter for transmitting the bit stream to a receiver, and a decoder for decoding the bitstream transmitted to the receiver, the video information comprising a set of frames comprising macroblocks, the encoder comprising:

means for forming ~~at least one switching frame~~a plurality of switching frames into said bitstream;

grouping means for arranging macroblocks of ~~said each~~ switching frame of said plurality of switching frames into a first group and a second group of macroblocks;

first encoding means for encoding each macroblock of said first group of macroblocks by a first encoding method to provide a switching point for continuing transmission of video information with another bitstream formed from the video information; and

second encoding means for encoding macroblocks of said second group of macroblocks by another encoding method, wherein successive switching frames of said plurality of switching frames do not have corresponding groups of macroblocks encoded by said first encoding method;

the decoder comprising

first decoding means for decoding each macroblock of said first group of macroblocks by a first decoding method corresponding to the first encoding method; and

second decoding means for decoding each macroblock of said second group of macroblocks by a second decoding method corresponding to the second encoding method.

14. (Original) The system according to claim 13, wherein said first encoding method is an intra encoding method.

15. (Original) The system according to claim 14, wherein said second encoding method is a predictive encoding method.

16. (Original) The system according to claim 13 comprising means for arranging said macroblocks of said switching frames into a set of slices, and for arranging macroblocks of one slice of said set of the slices as said first group of macroblocks, and for arranging macroblocks of other slices of said set of the slices as said second group of macroblocks.

17. (Currently Amended) The system according to claim 13 comprising

means for forming at least a first switching frame and a second switching frame into said bitstream, the first switching frames ~~frame~~ and the second switching frame being divided into mutually similar groups of macroblocks with each

macroblock of the first switching frame having a spatially respective macroblock in said second switching frame;

means for arranging macroblocks of said first switching frame into ~~a~~said first group of macroblocks and said second group of macroblocks; ~~means and for~~ arranging macroblocks of said second switching frame into ~~a third~~said first group of macroblocks and ~~a fourth~~said second group of macroblocks so that the macroblocks of said ~~third~~first group of macroblocks of said second switching frame are spatially different macroblocks than the macroblocks of said first group of macroblocks of said first switching frame;

means for encoding each macroblock of said first group of macroblocks of said first switching frame and said ~~third~~first group of macroblocks of said second switching frame by a first encoding method to provide a switching point for continuing transmission of video information with another bitstream formed from the video information; and

means for encoding macroblocks of said second group of macroblocks of said first switching frame and said ~~fourth~~second group of macroblocks of said second switching frame by another encoding method.

18. (Currently Amended) The system according to claim 13 comprising means for forming an intra encoded frame from a frame of said set of frames, for forming a switching predictive encoded frame from a frame following said intra encoded frame, and for forming ~~said~~ at least one switching frame from a frame following said switching predictive encoded frame.

19. (Currently Amended) A computer readable medium having a computer program comprising machine executable code stored thereon for execution by an encoder for transmitting transmission of video information, in which at least one bitstream is formed from the video information comprising a set of frames, the frames comprising macroblocks, wherein the computer program further comprises machine executable code for:

forming ~~at least one switching frame~~ a plurality of switching frames into said bitstream;

arranging macroblocks of ~~said each~~ switching frame of said plurality of switching frames into a first group of macroblocks and a second group of macroblocks;

encoding each macroblock of said first group of macroblocks in said each switching frame by a first encoding method to provide a switching point for continuing transmission of video information with another bitstream formed from the video information; and

encoding macroblocks of said second group of macroblocks in said each switching frame by ~~another~~ a second encoding method wherein successive switching frames of said plurality of switching frames do not have corresponding groups of macroblocks encoded by said first encoding method.

20. (Previously Presented) The computer readable medium according to claim 19 comprising machine executable code for encoding said first group of macroblocks by an intra encoding method.

21. (Previously Presented) The computer readable medium according to claim 20 comprising machine executable code for encoding said second group of macroblocks by a predictive encoding method.

22. (Previously Presented) The computer readable medium according to claim 19 comprising machine executable code for arranging said macroblocks of said switching frames into a set of slices, and arranging macroblocks of one slice of said set of the slices as said first group of macroblocks, and arranging macroblocks of other slices of said set of the slices as said second group of macroblocks.

23. (Currently Amended) The computer readable medium according to claim 19 comprising machine executable code for:

forming at least a first switching frame and a second switching frame into said bitstream, the switching frames being divided into mutually similar groups of macroblocks, ~~wherein~~ each macroblock of the first switching frame having a spatially respective macroblock in said second switching frame;

arranging macroblocks of said first switching frame into a first group of macroblocks and a second group of macroblocks;

arranging macroblocks of said second switching frame into a ~~third~~ said first group of macroblocks and a ~~fourth~~ said second group of macroblocks so that the macroblocks of said ~~third~~ first group of macroblocks of said second switching frame are spatially different macroblocks than the macroblocks of said first group of macroblocks of said first switching frame;

encoding each macroblock of said first group and ~~said third group of~~ macroblocks of both said first switching frame and said second switching frame by a said first encoding method to provide a switching point for continuing transmission of video information with another bitstream formed from the video information; and

encoding macroblocks of said second group and ~~said fourth group of~~ macroblocks of both said first switching frame and said second switching frame by ~~another~~ said second encoding method.

24. (Currently Amended) The computer readable medium according to claim 19 comprising machine executable code for forming an intra encoded frame from a frame of said set of frames, forming a switching predictive encoded frame from a frame following said intra encoded frame, and forming ~~said~~ at least one switching frame from a frame following said switching predictive encoded frame.

25. (Currently Amended) A method for reducing effects of transmission errors in transmission of video ~~[[information,]]~~ information from an encoder in which at least one bitstream is formed from the video information comprising a set of frames, the frames comprising macroblocks, wherein the method comprises:

forming ~~at least one~~ a plurality of switching predictive encoded ~~frame~~ frames into said bitstream by predictively encoding the macroblocks of ~~the~~ each switching predictive encoded frame;

replacing part of the switching predictive encoded macroblocks of said each switching predictive encoded with macroblocks encoded by an intra encoding method; and

~~transmitting a frame~~ a plurality of frames containing both predictively encoded macroblocks and intra encoded macroblocks ~~instead of said switching predictive encoded frame~~ wherein successive frames of said plurality of frames containing both predictively encoded macroblocks and intra encoded macroblocks do not have corresponding groups of macroblocks encoded by said first encoding method.

26. (Currently Amended) A computer readable medium comprising machine executable code for execution by an encoder in reducing effects of transmission errors in transmission of video information, in which at least one bitstream is formed from the video information comprising a set of frames, the frames comprising macroblocks, wherein the computer readable medium further comprises machine executable code for:

~~forming at least one~~ a plurality of switching predictive encoded ~~frame~~ frames into said bitstream by predictively encoding the macroblocks of ~~the~~ each switching predictive encoded frame;

replacing part of the switching predictive encoded macroblocks of said each switching predictive encoded with macroblocks encoded by an intra encoding method; and

~~transmitting the encoded frame~~ a plurality of frames containing both predictively encoded macroblocks and intra encoded macroblocks ~~instead of said switching predictive encoded frame~~ wherein successive frames of said plurality of frames containing both predictively encoded macroblocks and intra encoded macroblocks do not have corresponding groups of macroblocks encoded by said first encoding method.

27. (Currently Amended) A computer readable medium having video information stored thereon for use ~~in~~ by a transmitter in retrieving the video information from the computer readable medium for transmitting the video information on a signal in at least one bitstream comprising the video information in a set of frames, the frames comprising macroblocks, wherein the signal comprises:

~~at least one switching frame~~ a plurality of switching frames of said plurality of switching frames;

macroblocks of ~~said each~~ said each switching frame of said plurality of switching frames being arranged into a first group of macroblocks and a second group of macroblocks;

each macroblock of said first group of macroblocks in said each switching frame being encoded by a first encoding method to provide a switching point for continuing transmission of video information with another bitstream formed from the video information; and

macroblocks of said second group of macroblocks of said each switching frame being encoded by ~~another~~ a second encoding method wherein successive switching frames of said plurality of switching frames do not have corresponding groups of macroblocks encoded by said first encoding method.

28. (Previously Presented) The computer readable medium according to claim 27, wherein said first group of macroblocks are encoded by an intra encoding method.

29. (Previously Presented) The computer readable medium according to claim 28, wherein said second group of macroblocks are encoded by a predictive encoding method.

30. (Previously Presented) The computer readable medium according to claim 27, wherein said macroblocks of said switching frames are arranged into a set of slices, and macroblocks of one slice of said set of the slices are arranged as said first group of macroblocks, and macroblocks of other slices of said set of the slices are arranged as said second group of macroblocks.

31. (Currently Amended) The computer readable medium according to claim 27 comprising

at least a first switching frame and a second switching frame formed into said bitstream, the switching frames being divided into mutually similar groups of

macroblocks, ~~wherein~~ each macroblock of the first switching frame having a spatially respective macroblock in said second switching frame;

macroblocks of said first switching frame are arranged into a first group of macroblocks and a second group of macroblocks;

macroblocks of said second switching frame are arranged into ~~a third~~ said first group of macroblocks and ~~a fourth~~ said second group of macroblocks so that the macroblocks of said ~~third~~ first group of macroblocks of said second switching frame are spatially different macroblocks than the macroblocks of said first group of macroblocks of said first switching frame;

each macroblock of said first group ~~and said third group~~ of macroblocks of both said first switching frame and said second switching frame are encoded by ~~a said~~ first encoding method to provide a switching point for continuing transmission of video information with another bitstream formed from the video information; and

macroblocks of said second group ~~and said fourth group~~ of macroblocks are encoded of both said first switching frame and said second switching frame by ~~another~~ said second encoding method.

32. (Currently Amended) The computer readable medium according to claim 27, wherein an intra encoded frame is formed from a frame of said set of frames, ~~an~~ and a switching predictive encoded frame is formed from a frame following said intra encoded frame, and ~~said~~ at least one switching frame is formed from a frame following said switching predictive encoded frame.

33. (Currently Amended) An apparatus for encoding video information into at least one bitstream, the video information comprising a set of frames comprising macroblocks, the apparatus comprising:

means for forming ~~at least one switching frame~~ a plurality of switching frames into said bitstream;

grouping means for arranging macroblocks of ~~said each~~ said plurality of switching frames into a first group and a second group of macroblocks;

first encoding means for encoding each macroblock of said first group of macroblocks in said each switching frame by a first encoding method to provide a switching point for continuing transmission of video information with another bitstream formed from the video information; and

second encoding means for encoding macroblocks of said second group of macroblocks in said each switching frame by ~~another~~ a second encoding method wherein successive switching frames of said plurality of switching frames do not have corresponding groups of macroblocks encoded by said first encoding method.

34. (Currently Amended) An apparatus comprising:

an input for inputting successive frames of video information in a received signal having information on an encoding method of a group of macroblocks of each frame;

first prediction block configured for decoding each macroblock of said group of macroblocks by a first decoding method corresponding to a first encoding method when said information indicates that said group of macroblocks have been encoded by the first decoding method; and

second prediction block configured for decoding each macroblock of said group of macroblocks by a second decoding method corresponding to a second encoding method when said information indicates that said group of macroblocks have been encoded by the second decoding method wherein said successive frames do not have corresponding groups of macroblocks encoded by said first encoding method.